DOE/EPRI Energy Storage Handbook (in Collaboration with NRECA)

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EPRI-DOE Handbook of Energy Storage for Transmission & Distribution Applications

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Final Report, December 2003

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Chapter 1 – Introduction

Chapter 2 – National Perspective on the Benefits of Electricity Storage.

Chapter 3 – T&D Applications for Benefit - Cost Assessments.

Chapter 4 – Energy Storage Benefits and Benefit Quantification.

Chapter 5 - Common Financial Parameters and Cost Elements.

Chapter 6 – Lead Acid Batteries.

Chapter 7 – Nickel-Cadmium and Other Nickel Electrode Batteries.

Chapter 8 - Sodium – Sulfur Batteries.

Chapter 9 – Zinc Bromine Batteries.

Chapter 10 - Vanadium Redox Batteries.

Chapter 11 - Sodium Polysulfide – Sodium Bromide Batteries.

Chapter 12 - Superconducting Magnetic Energy Storage.

Chapter 13 - Flywheel Energy Storage.

Chapter 14 - Electrochemical Capacitors.

Chapter 15 - Compressed Air Energy Storage.

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Project Partners

Electric Power Research Institute (EPRI)

- **Project Lead: Dan Rastler**

National Rural Electric Cooperative Association (NRECA)

- **Project Lead: Dale Bradshaw**

AECOM

- **Project Lead: Dave Gauntlett**

Advisory Panel: ESA; Utility Representatives; Industry Representatives; Consultants

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Handbook Details

Compile a new Energy Storage Handbook

- **How-to guide for selection and installation of energy storage systems**
- **Review of select storage technologies, performance characteristics and value propositions**
- **Detailed cost data from ~ 40 system vendors and integrators**
  - **First time that same cost data will be shared by DOE/Sandia, EPRI and NRECA**
- **Schematics and one-lines for select applications to illustrate interconnection and configuration options**

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Chapter Outline

- Energy Storage in Today's Applications
- Storage Technologies and Performance Characteristics
- Storage Applications and Some Value Propositions
- Considerations in Acquiring a Storage System
- Sample Energy Storage Projects: Past and Present
- Additional Reading and Resources

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Development of Cost Database

Surveyed System Vendors and Integrators to obtain specific cost information

- **Batteries – 24 to 30**
- **Flywheel - 1**
- **CAES – 3**
- **Pumped Hydro – Using EPRI study information**
- **Inverters - 4**

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Release Detail

Schedule:

- **Review Draft: March 2012**
- **Publish Date: June end, 2012**

Handbook to be published by Sandia National Laboratories:

Print and PDF release

Cost database in Handbook is static

EPRI and NRECA will develop interactive screening tools

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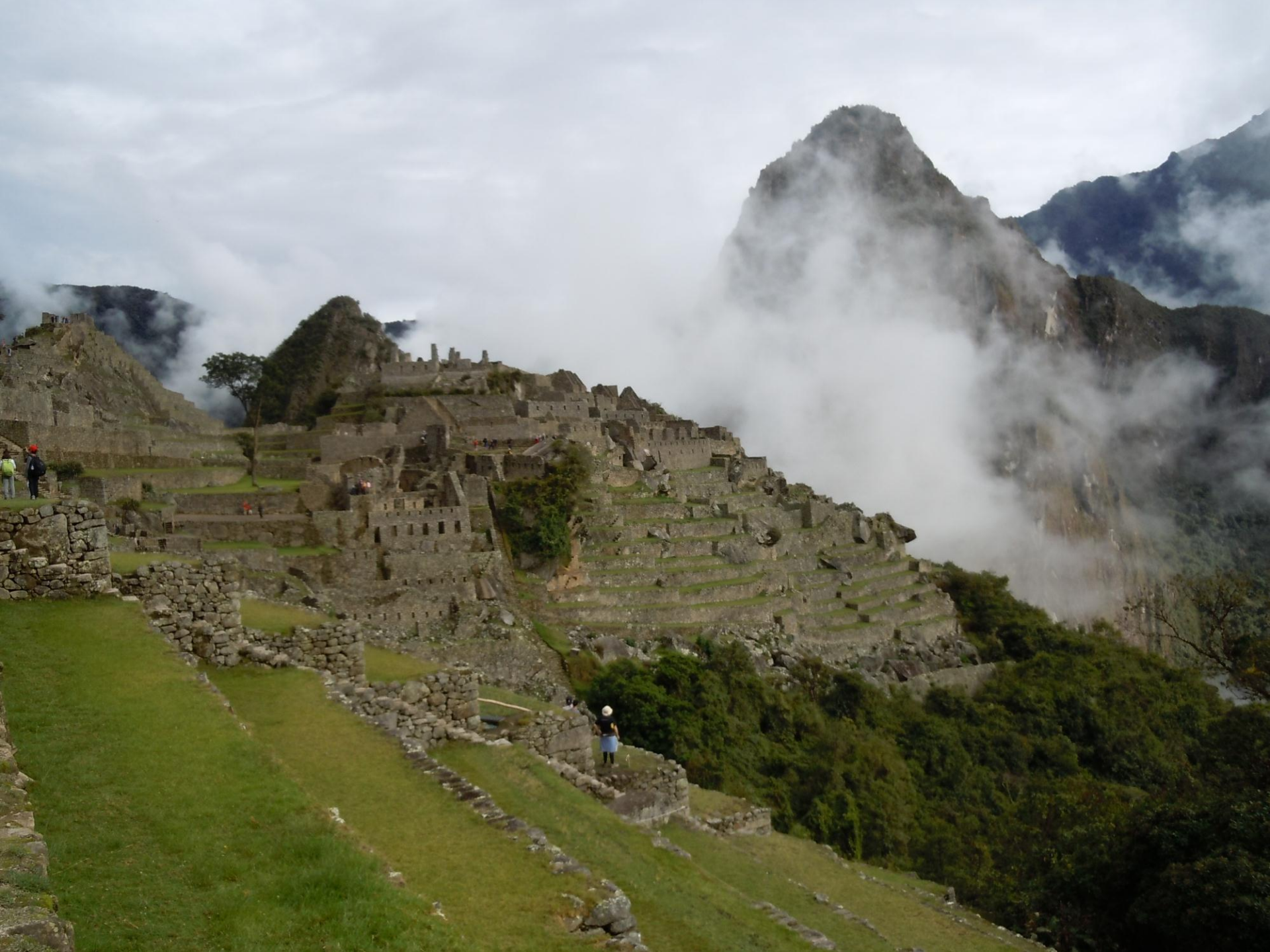

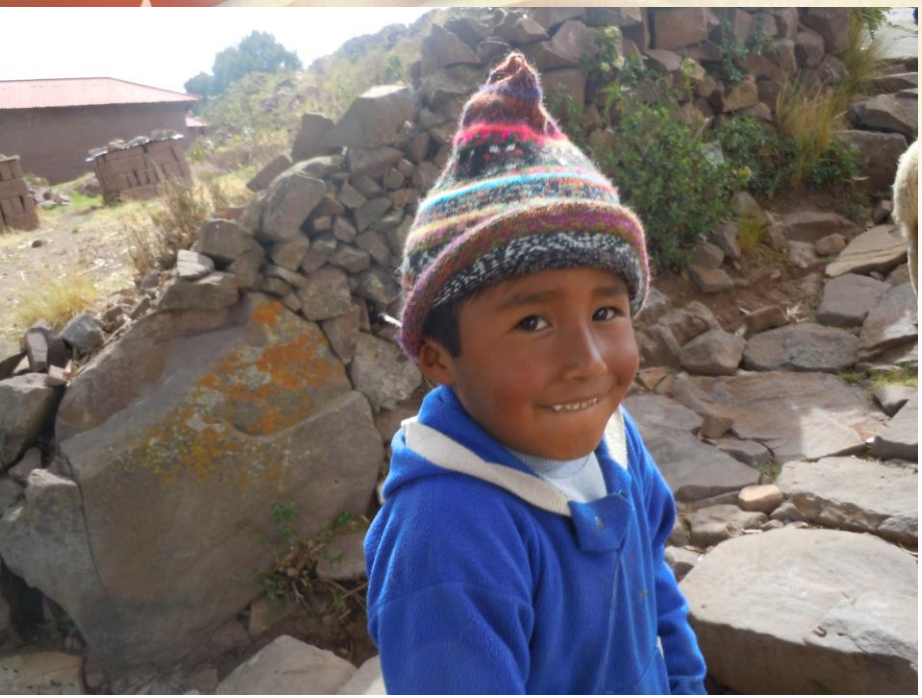

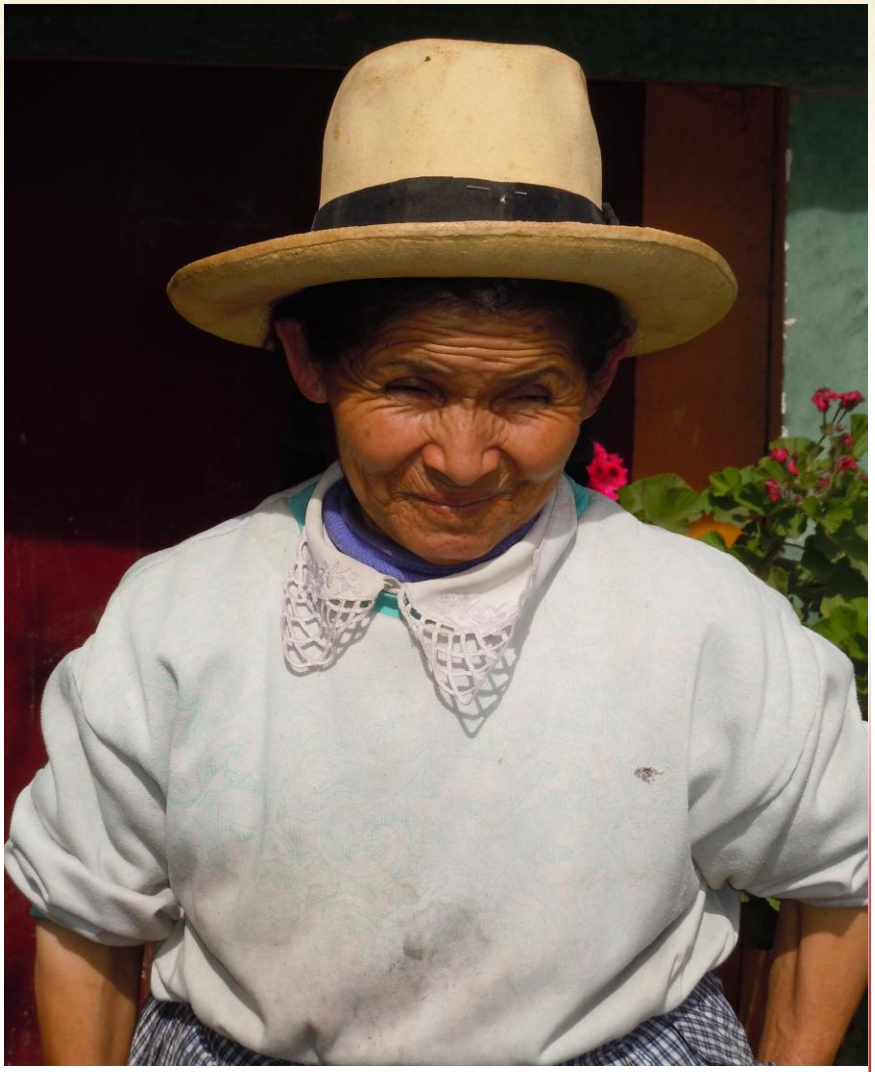

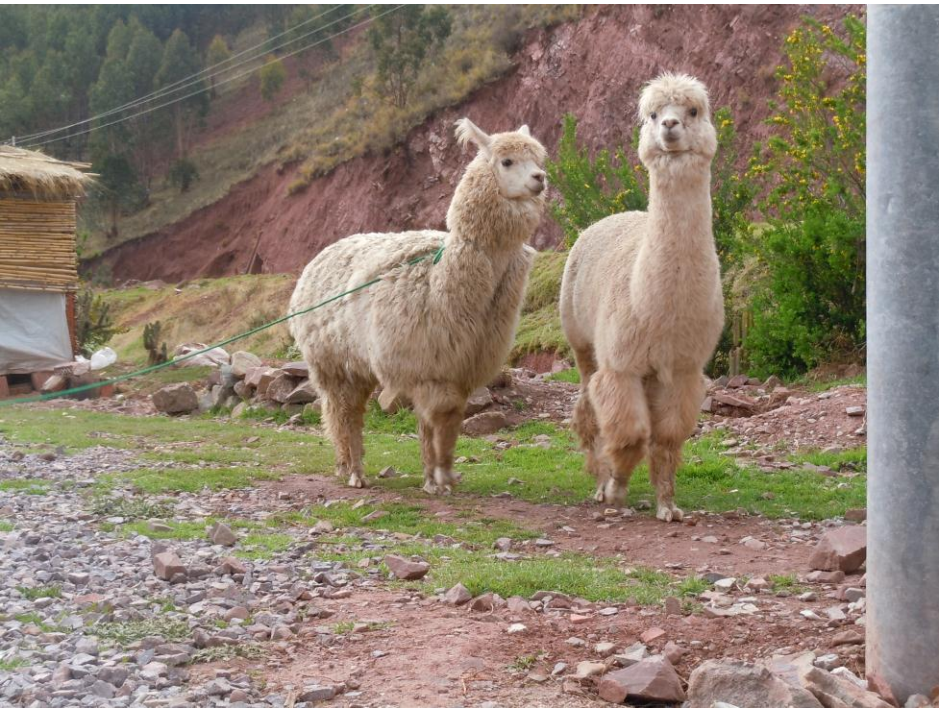

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